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Canadian Forestry Service-Maritimes
TECHNICAL NOTE

A STRATEGY FOR GROWING BLACK ASH IN THE MARITIME PROVINCES

INTRODUCTION

Black ash (Fraxinus nigra Marsh.) has a diffuse distribution throughout the Maritimes. It is common along stream drainages and alluvial river estuaries. Black ash does not form forest stands, but small groups, long strips, and single stems occur on favorable habitats. A relatively small (25 m), short-lived (75 years) tree, nevertheless it has a reputation as a valuable tree of the wetlands - its narrow, even growth rings provide splints and hoops for traditional Indian woven baskets and boxes.

Therefore, it is no surprise that there is keen interest in the propagation of ash for the use of future generations by today's Maritime Indians.

In the past, skill was developed in selecting and using the best stems for basket splints, poles, stakes, boards and, of course, fuelwood. Today the need to reproduce and manage this dwindling resource is recognized.

REGENERATION STRATEGIES

Management of established natural seedlings

Existing natural ash seedlings should be identified and protected from any further logging damage. Groups of black ash and other timber species can be ribboned-off and avoided in logging operations. This advance growth can then be worked into the silvicultural prescriptions for seedling and sprout management.

Treatments specific to advance growth might include protection from browsing by using individual tree shelters up to 75 cm high and by thinning out overcrowded saplings using a brush saw. Most importantly,

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DISTINGUISHING CHARACTERISTICS

Black ash (Fraxinus nigra. Marsh.) has a soft, finely ridged bark (Fig. 1) which is especially dark colored when it is wet.

The leaves are longer than those of white and other ashes (Fig. 2), with many narrow leaflets (up to 11) which are without stalks.

Seeds are long and pointed (Fig 3), and surrounded by the narrow wing which has a slight notch at the tip. White ash seed is more exposed.

The first lateral buds are distinctly separated from the terminal bud and do not crowd it like white or green ash buds (Fig. 4). Lateral buds are opposite, giving a forked, not zig-zag, branching habit.

advance growth ash stems should not be carelessly destroyed during a logging operation. The greater expense of other regeneration strategies should be apparent as they are described below.

Management of stump sprouts

Black ash can regenerate from stump sprouts. When an ash tree is cut down, sprouts usually appear at the butt-swell and form a distinct clump of 7 to 17-or-so stems. These grow vigorously and soon rise above the competing vegetation if they are not browsed or damaged by storms. Because of their well-established root system, sprouts are more drought-resistant than single stem seedlings. They provide an attractive regeneration alternative in basket ash culture.

Where cutting of black ash has been recently carried out, or is underway, it is worthwhile to plan on sprout culture -- the coppice system of silviculture.

By age 12, the sprout clump should be thinned to the tallest sprout, plus a healthy back-up stem on the opposite side of the stump. Competing stems of other species should be cut out in a 5m diameter circle around the stump. No other weed control or protection from browsing should be needed, but wire netting around the sprout stems may be useful where deer populations are high. Thus, every ash that is cut down might produce another and arrangements can be made for the proper silvicultural treatments -- sprout thinning and release from competing stems.

Management of transplants

Ash seedlings can be grown from seeds collected in October from the clusters which hang from the female parent tree. These can be broadcast right away, on a well cultivated and weeded garden-like seedbed, heavily mulched. The mulch is removed in spring as soon as the seeds germinate. Overcrowded seedlings can be thinned to 6 cm spacing and the extras planted in pots. Osmocote is a good slow-release fertiliser for ash and can be used in both the seedbed and pots as directed.

During the next year the seedlings are held in the nursery and must be root-pruned (undercut with a blade at a depth of 15 cm). The potted stock roots are kept compact by the pot. If facilities are available, the seedlings can be lifted and cold-stored in the fall of this year (2), or lifted before bud-break in the spring of year three.

Site Preparation

Proper preparation of the site is the key to successful transplanting of ash seedlings. The appropriate sequence of treatments is:

1. land clearing;
2. site cultivation;
3. chemical weed control in fall;
4. chemical weed control in spring;

5. planting in spring;
6. mouse control;
7. protection from rabbits and deer;
8. chemical weed control in the fall;
9. maintenance of mouse bait stations and rabbit and deer protection; and
10. transplants are now free to grow.

Since black ash commonly grows in groups, patch land-clearing is recommended. Patches, 50 meters in diameter, are cleared in the area to be regenerated to give 250 patches per hectare. The patches do not have to be evenly spaced and should take advantage of natural openings and easy-to-clear brush.

Clearing (1) can be combined with cultivation (2) if a root rake is used. With smaller equipment such as a farm disk plow, a separate pass or two will be needed to complete the cultivation.

The herbicide of first choice is a preemergence grass control chemical (eg. Simazine); the second treatment is with a wide spectrum herbicide (eg. Vision.). If grass continues to be a problem, Simazine should be used the following year. (see Appendix I).

Spring planting is completed with 2-year-old, dormant (no leaves) transplants or equivalent container greenhouse stock (may be leafed out). At a rate of 20 per patch, there are 5000 plants per hectare. Each seedling should be protected by a wire mesh shelter or a plastic sleeve (75cm x 12 cm) and staked upright.

At least one poison-grain, mouse-bait station is needed in each patch.

A further directed-spray chemical weed control treatment may be necessary in one or two years, before the tree shelter tubes are removed, and the saplings are free to grow.

Simple!

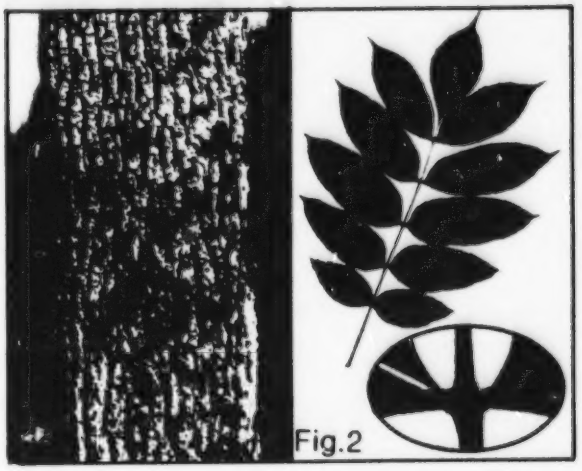

Fig.2

Bark is scaly

Leaf has tufts of hairs at the stalkless leaflet junctions

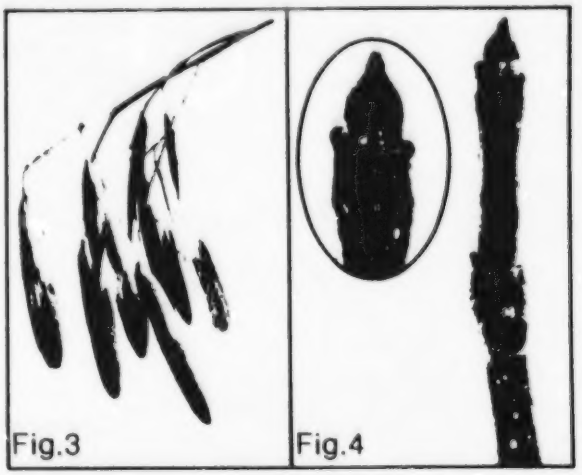

Fig.3

Seed-wing extends to base of seed as in blue ash

Fig.4

Twig has wide space between terminal bud and uppermost side buds

APPENDIX

Where to plant: For optimum growth plant in deep, moist, well drained to imperfectly drained loams, clay loams or clays, preferably with a high nitrogen and moderately high calcium content. Will also grow on sandy loams if there is sufficient moisture. Requires high soil moisture and will tolerate temporary flooding.

Where not to plant: In infertile, eroded, shallow soils; on dry, sandy or gravely exposed ridges and in any soil with a topsoil depth of less than 12 in (30 cm) or in swamps.

Site preparation: In August before spring planting spray ½ U.S. gal/ac (4.7L/ha) of Roundup over the total plantation area or spray in strips at least 6 ft. (1.8 m) wide. One week after spraying plow and disk or rototill the sprayed area. On sites where mechanical site preparation is not possible or desirable, spray ½ U.S. gal/ac (4.7 L/ha) of Roundup in August in strips at least 6 ft (1.8 m) wide or in circular spots with a diameter of at least 5 ft (1.5 m).

Planting stock: 2 + 0 seedlings.

Time of planting: Machine planting or spade planting using the wedge method.

Weed control after planting: Shortly after planting spray 3.0 lb/ac (3.3 kg/ha) of Princep 80W on loam soils and 4.0 lb/ac (4.5 kg/ha) on clay loam and clay soils. Spray entire area, strips or spots. In October of the first and second year or April of the second and third year after planting spray 4.0 lb/ac (4.5 kg/ha) of Princep 80W on all soils. Spray the same areas as were sprayed previously. Where necessary continue spraying after the third year until the tree seedlings have outgrown the weed competition.

Rodent control: Where stem girdling by mice is a problem, eliminate weeks or place tree guards around the stems.

Pruning: During the first 5 years after planting prune one side of forked leaders or individual branches annually to improve stem form. Thereafter remove the lowest branches every 3 to 5 years. However, always leave a crown a two-thirds to one-half of the total height of the tree.

Recommendations for The Chemical Control of Grasses in Hardwood Plantations

A. Before the hardwoods seedlings are planted, one of the following methods should be employed.

1. Apply ½ U.S. gal/ac (4.7 L/ha) of Roundup in 50 gal/ac (560 L/ha) of water to actively growing grasses and broadleaf weeds. Use tractor-mounted boom sprayer for broadcast coverage of large areas. For small areas, strips or spot treatments, mix 1 fl oz (28 ml) of Roundup with 1 gal (4.5 L) of water and spray with a backpack or hand sprayer. One gal (4.5 L) of mixture will treat 650 sq. ft. (60 sq. m). The spray coverage should be uniform and complete without wetting the foliage to the point of runoff. Where possible, plow and disk after one week. Even without plowing, however, grasses and broadleaved weeds will be killed by the herbicide.

2. Plow and disk the field in the summer or autumn. Apply 4 lb/ac (4.5 kg/ha) of Kerb 50 W in 20 gal/ac (220 L/ha) of water in late autumn, but in advance of freezeup. Use tractor-mounted sprayer for broadcast coverage of large areas. For small areas, strips or spot treatments, mix 4 heaped tbsp (40 g) of Kerb with 1 gal (4.5 L) of water and spray with a backpack or hand sprayer. One gal (4.5 L) of mixture will treat 1000 sq. ft. (92 sq. m). Kerb will be taken up by the grass roots or rhizomes during the winter and all grasses but no broadleaf weeds will be killed during the winter.

B. After the hardwood seedlings have been planted:

1. Apply a directed spray of ½ U.S. gal/ac (4.7 L/ha) of Roundup in 50 gal/ac (560 L/ha) of water to actively growing grasses and broadleaf weeds. For small areas, strips or spot treatments, mix 1 fl oz (1.5 tbsp or 28 ml) of Roundup with 1 gal (4.5 L) of water and spray with a backpack or hand sprayer. One gal (4.5 L) of mixture will treat 650 sq. ft. (60 sq. m). The spray coverage should be uniform and complete without wetting the foliage to the point of runoff. Be sure to avoid spraying the foliage of desirable vegetation and avoid drifting of the spray solution during application because any spray particles touching the leaves of trees or other desirable plants will injure or kill the plants.

2. Apply 4 lb/ac (4.5 kg/ha) of Kerb in 20 gal/ac (220 L/ha) of water in late autumn but in advance of freezeup. For small areas, strips or spot treatments, mix 4 heaped tbsp (40 g) of Kerb with 1 gal (4.5 L) of water and spray with a backpack or hand sprayer. One gal (4.5 L) of mixture will treat 1000 sq. ft. (92 sq. m). Kerb may be broadcast over the trees like Princep without shielding or directing the spray away from the trees. Kerb will be taken up by the grass roots or rhizomes during the winter, and all grasses but no broadleaf weeds will be killed during the winter.

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